

## **DETAILED ACTION**

### ***Formalities***

Claims 1, 11-12 and 31-48 are pending. Applicants' amendment, dated June 3, 2011, has been entered.

Applicant's election with traverse of Group I in the reply filed on June 3, 2011, is acknowledged. The traversal is on the ground(s) that all four groups identified in the May 3, 2011 Election/Restriction Requirement require common elements, *viz.*, a core and a nano-structure. This is not found persuasive because the combination of a core and a nano-structure still does not make a contribution over the prior art when each invention is considered as a whole. For instance, Carpenter et al. (U.S. Patent No. 7,235,228) discloses nanoparticles having core/shell architecture. See Abstract.

The requirement is still deemed proper and is therefore made FINAL.

Claims 11-12 and 40-48 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on June 3, 2011.

Accordingly, claims 1 and 31-39 are examined on the merits to which the following grounds of rejection are applicable.

### ***Specification/Drawings Objections***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 4A-4D, 13C-13D, 15C-15D, and 16C. Corrected drawing sheets in compliance with 37 CFR

Art Unit: 1618

1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Figures 55C and 57C (page 18 of the present specification). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Objections***

Claim 33 is objected to because of the following informalities: an "a" should be inserted before "third metal" in the third line of the claim. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 34, and 36 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "a nano-structure formed *an* outer surface of the core." Use of the term "an" is grammatically incorrect and renders the limitation incomprehensible. Accordingly, the scope of the claim cannot be understood. For purposes of examination, the limitation is interpreted as "a nano-structure formed *on an* outer surface of the core."

Claim 34 recites the limitation "wherein the . . . third metals or metal alloys" in first and second lines of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claims 36 and 37 recite the limitation "wherein the first metal and first metal alloy are selected . . ." in first and second lines of the claim. There is insufficient antecedent basis for this limitation in the claims.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1, 31-39 are rejected under 35 U.S.C. 102(a) and (e) as being anticipated by West et al. (WO 01/05586).

Applicants claim a composition comprising a nano-particle core and a nano-structure formed on the outer surface of the core. Both the core and the nano-structure are comprised of conductive materials which may be the same or different. Applicants further identify the nano-structure as consisting either of a nano-shell, a plurality of nano-rods, or a nano-shell having a plurality of nano-rods disposed on a surface of the nano-shell. The nano-rods comprise a third conductive material which may be the same or different than the first and second conductive materials. Additional limitations also identify the particular composition of the conductive materials as either metals, metal alloys or conductive polymers and name particular types of metals and metal alloys, i.e., noble, transition and non-transition.

West teaches the use of gold nanoshells in photothermally modulated drug delivery systems. Page 7 lines, 17-25. According to West, “[g]old nanoshells are a preferred class of optically active nanoparticles that consist of a thin layer of gold surrounding a dielectric core, such as gold sulfide.” *Id.* West further teaches that “[b]y also varying the core and shell materials, which are preferably gold or silver over a silicon dioxide or Au<sub>2</sub>S core, the tunable range can be extended to cover most of the UV

Art Unit: 1618

to near-infrared spectrum." Page 8, lines 4-6. Gold and silver are known transition metals.

In view of the above, West teaches all the limitation of claims 1 and 31-39, and thereby anticipates them.

### ***Conclusion***

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT CABRAL whose telephone number is (571)270-3769. The examiner can normally be reached on Monday - Friday 9:30 a.m. - 6:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Hartley can be reached on 571-272-0616. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1618

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